

QUESTIONS FOR UNDERSTANDING – 1919 Cosmic Times

Sun's Gravity Bends Starlight

1. What are the names of the two men whose theories about gravity are being compared?
2. Of these two, whose prediction was proven to be most accurate?
3. What do both of these scientists predict the Sun's mass will do to a ray of light?
4. During a solar eclipse, diagram the relative positions of the Sun, Moon and Earth.
5. Why was it necessary to photograph the stars during a total solar eclipse?
6. Why did the scientists decide to photograph the eclipse from two different locations on Earth?
7. Why was it necessary for the scientists to photograph the same stars several months later?

Mt. Wilson Astronomer Estimates Milky Way 10 Times Bigger Than Previously Thought

1. Who is the astronomer who discovered this?
2. Describe the size and shape of the galaxy according to this astronomer.
3. Where is the Sun located in the galaxy?
4. What special collections of stars did Shapley study to learn the size and structure of the galaxy?

5. What special instrument did Shapely use to analyze the light from globular clusters to determine if they were moving toward or away from the Sun?
6. Within the globular clusters, what special types of stars allowed Shapely to determine the distance to them?
7. Complete the following table

Dimensions	Other Astronomers before Shapley	Shapley
Distance of Sun from the galactic center		
Diameter of the galaxy		

Compared to previous estimates, how many times larger was the galaxy, according to Shapely?

8. Why did Shapely believe there could be no other galaxies outside the Milky Way?